Log Event A

Borehole # 30-06-04

Borehole Information

Farm : C	**Tank :** C-106	**Site Number :** 299-E27-73
N-Coord : 42,897	**W-Coord :** 48,288	**TOC Elevation :** 644.71
Water Level, ft :	**Date Drilled :** 11/30/1972	

Casing Record

Type : Steel-welded	Thickness : 0.280	ID, in. : 6
Top Depth, ft. : 0	Bottom Depth, ft. : 130	

Borehole Notes:
This borehole was drilled in November 1972 to a depth of 130 ft using 6-in. casing. The drilling report does not indicate if the borehole casing was perforated or grouted. The casing thickness is presumed to be 0.280 in., on the basis of the published thickness for schedule-40, 6-in. steel tubing. The top of the casing, which is the zero reference for the SGLS, is approximately flush with the ground surface.

Equipment Information

Logging System : 1	**Detector Type :** HPGe	**Detector Efficiency:** 35.0 %
Calibration Date : 10/1996	**Calibration Reference :** GJO-HAN-13	**Logging Procedure :** P-GJPO-1783

Log Run Information

Log Run Number : 1	**Log Run Date :** 02/05/1997	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 129.5	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 66.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

Log Run Number : 2	**Log Run Date :** 02/06/1997	**Logging Engineer:** Alan Pearson
Start Depth, ft.: 0.0	**Counting Time, sec.:** 100	**L/R :** L **Shield :** N
Finish Depth, ft. : 67.0	**MSA Interval, ft. :** 0.5	**Log Speed, ft/min.:** n/a

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Analysis Information

Analyst : E. Larsen

Data Processing Reference : P-GJPO-1787 Analysis Date : 05/16/1997

Analysis Notes :

This borehole was logged by the SGLS in two log runs. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation. Casing correction factors for a 0.280-in.-thick steel casing were applied during analysis.

The man-made radionuclides Cs-137 and Co-60 were detected in this borehole. Cs-137 contamination was detected from the ground surface to about 66 ft with the contamination level generally decreasing with depth. Isolated concentrations of Cs-137 were also detected between 71 and 111 ft. The presence of Co-60 was detected continuously from 85 to 90.5 ft and at 93 ft.

The K-40 concentration values increase gradually from 43 to 49 ft, remain elevated and become increasingly variable to a depth of 75 ft, increase again at 79 ft, and remain elevated to bottom of the logged interval.

It was not possible to identify many of the 609-keV peaks used to derive the U-238 concentrations between the ground surface and 27 ft because of an elevated Compton continuum from the Cs-137.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Reports for tanks C-102, C-103, and C-106.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

A comparison plot is also provided showing the Cs-137 and Co-60 concentrations determined from the SGLS in 1997 and those determined from the Radionuclide Logging System (RLS) in 1993.

A plot of representative historical gross gamma-ray logs from 1975 to 1993 is included. The headings of the plots identify the date on which the data in the plots were gathered.